



# Welding

## Career Competition

**Career Cluster:** Manufacturing/ STEM

**State Qualifying Exam:** Yes

**National Contest:** Yes

**Participation:** Individual

### Competition Description

Through a series of stations, competitors are tested on various aspects of welding, Gas Metal Arc Welding (GMAW) and Oxy Fuel Cutting (OFC). Competitors complete a steel project for SMAW, GMAW, GTAW, and OFC.

### Tasks To Be Evaluated

The competitors will perform SMAW, GMAW, GTAW, OFC, and Layout at the competition. The weld size, location of welds, and the overall fit up of the project will be judged. The competitor will need to work from blue prints to layout and put the project together. The print will have weld symbols on it to define what process and weld size will need to be placed and at which location.

Safety is a #1 concern for us as the student works and if we see that something is not safe or to standard shop practice we will warn the student and if needed take points off for this. The contest allows for 1 hour 45 minutes to complete the project. If there are equipment issues or other problems the Technical Chair will determine if additional time will be allotted.

### Clothing Requirement

#### National Requirement:

**Class I:** Competition Specific: Welding | Welding Fabrication

- Official SkillsUSA khaki long-sleeve work shirt (100% cotton as per OSHA regulations)
- Khaki pants (100% cotton as per OSHA regulations)
- Black, brown, or tan leather work shoes.

#### State Requirement:

National Requirement OR

- Long-sleeve work shirt (100% cotton as per OSHA regulations) without rips or tears
- Long pants (100% cotton as per OSHA regulations) without rips or tears
- Black, brown, or tan leather work shoes.
- Any embroidered names or school patches must be covered, if applicable.

### Provided by Competitor

- All personal protective equipment
- Hearing and/or ear protection
- Welding helmet with appropriate filter plate/lens and protective cover plate/lens in a flip or slide front. Auto dark helmets are permissible.
- Spare spatter and filter lenses/plates for arc welding helmet and oxy-acetylene goggles or face shield.
- **STUDENTS ARE NOT PERMITTED TO BRING ANY TEMPLATES.**
- The competitor will need to provide the tools that are needed for him or her to layout the project from the blueprints, fit up the project. (Recommended square, tape measure, compass, protractor, side cutting pliers, needle nose pliers or welpers, 11e or 10-inch vise grips, up to 4 C-clamps, soapstone or other marking device, chipping hammer, wire brush, and file at a minimum).
- **GRINDERS AND ALL OTHER POWER TOOLS WILL NOT BE PERMITTED**
- All competitors must create a one-page resume and submit a hard copy to the technical committee chair at orientation. Failure to do so will result in a 10-point penalty.



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### **Additional Information**

When fabricating, sometimes parts and/or steel pieces are not supplied with the correct dimensions. If the dimensions are different than your prints, “on the job” corrections must be made. Notify the judges if materials are not the correct dimensions prior to any material prep. The judges will take that into consideration when judging.

### **Safety**

- Helmets, face shields and/or oxy-acetylene goggles must be worn while cutting.
- All proper PPE must be worn while welding, including tacking. If anyone is seen tacking without proper PPE, points will be deducted from the overall score, and depending on the situation, one or more team members may be dismissed from the competition.
- Safety glasses must be worn AT ALL TIMES.
- Only one booth and welding machine may be used at a time.
- Gloves must be worn at all times while handling material. Treat all supplied metal as “hot” at all times when handling or points will be deducted.
- Ear plugs must be worn at all times from the start of the competition. All the various teams may be cutting, welding, hammering, etc. at any given time so ear plugs are required throughout the competition.
- No use of electronic devices will be permitted at any time during the competition.
- All major safety violations will result in immediate dismissal of the individual from the contest.

### **Provided by Technical Committee**

- Welding Machines and consumables.
- Oxy – Acetylene Torches
- Supplies from the Bill of Materials.

*Note – There are not enough of all of these tools for all teams to have their own. They are shop tools and are to be used fairly among all teams. No “camping” on equipment will be allowed. No layout will be done at these shop tools. Measure it and mark it at your station, then cut it at the tool station, and allow the other teams to get on the equipment.*